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LANGUAGE-THOUGHT PROCESSES IN CHILDREN FROM DIFFERING SOCIOECONOMIC LEVELS.

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The major objectives of this study were (1) to define more clearly "creativity" and "language aptitude," (2) to define the relationships among creativity, language aptitude, and intelligence, and (3) to clarify the role of socioeconomic level in determining these relationships. The subjects were 132 sixth-grade pupils from middle and low socioeconomic levels who were tested to establish their intelligence, language aptitude, and creativity. It was determined that the middle socioeconomic group performed at a significantly higher level on all three tests than did the low socioeconomic group. The experimental design basic to the study was a factor analytic design. Results indicated that children from the two different levels had different approaches to language tasks and different processes for creative thought. A change in the type of problem requiring divergent productive semantic thinking produced no change in middle socioeconomic thought processes, but did produce a change in the thought processes of the low socioeconomic group. Further research is suggested. References are included. (BS)

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LANGUAGE-THOUGHT PROCESSES IN CHILDREN FROM DIFFERING SOCIOECONOMIC LEVELS

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The development of thinking has been accepted as one of the most important aims of American education (6, 11). At the same time, increasing research and interest in the thinking process has developed. In order to enhance the thought processes of children, educators must understand what kinds of thinking are considered to exist and what each mode of thinking involves.

For many years verbal measures have been looked upon as a means of measuring human thought processes. To go further, in fact, evidence that verbal facility may mold thinking has been presented by Piaget (13), Watts (17), Ervin and Osgood (7), Whorf (18), Lambert, Havelka and Crosby (10), Staats (15), Vygotskii (16), Carroll (5), Ausubel (1), and others. And verbal facility--the state of

language development of an individual is closely related to language aptitude--how well an individual can learn language. It is, therefore, quite appropriate and necessary for those educators who are interested in teaching children language (all means of arriving at this objective being involved, i.e., reading, writing, usage, etc.) to be aware of the ways children learn and think about language, their language-thought processes.

In a recent creativity study, Wallach and Kogan (19) redefined and delimited creativity as a cognitive process which may involve only two elements. The first element involves the verbal generation of new combinations of associative elements, specific requirements being met in the process-an example of this being the set of verbal responses made orally by the examinee to the test administrator's request for a list of all of the round things that can be brought to mind by the examinee. The second element merely involves the presence in the associator of a playful, indulgent task attitude. Wallach and Kogan showed that creativity so delimited and defined may be measured and shown to be independent of general intelligence measures.

The fact that the general intelligence measures and creativity measures used in the Wallach and Kogan study both call upon verbal facility to some degree and yet are not highly correlated takes on special meaning in light of Carroll's (4) implications that general intelligence differs from language aptitude and that only certain factors measured by general intelligence tests should be included in a language aptitude test.

The questions to be considered at this point are: first, is language aptitude related to the results of general intelligence measures and creativity measures; and second, if so, what is the nature of the relationships among measures of language aptitude, intelligence, and creativity? Research has already indicated that the results of general intelligence measures may be affected by language differences and/or cultural deprivation. Also, there is evidence of the effect of one's cultural

orientation on his creativity.

Consequently, the major objectives of this study were to: (a) work toward a clearer definition of the terms creativity and language aptitude; (b) better define the relationships among creativity, language aptitude, and intelligence, and (c) clarify the role socioeconomic level has to play in determining these relationships.

Procedure

Subjects

The subjects were 132 sixth-grade, public school pupils, 93 of which were from a middle-socioeconomic level area and 39 of which were from a low-socioeconomic level area of northeastern Ohio. In studying the occupations of the parents as reported by the subjects it was found that according to the Otis Dudley Duncan Socioeconomic Index (14) none of the parents of those in the group from the low-socioeconomic level would place above 15 (on a one hundred point scale) when employed, while the parents of those in the group from the middle-socioeconomic level would place between 23 and 96 -- many in this group having both parents employed. The mean scale placement of parents of children studied in the middle-socioeconomic level area was 55.12; the standard deviation was 12.1. The mean scale placement of the parents of children studied in the low-socioeconomic level area was 6.13; the standard deviation was 2.18.

Materials and Collection of Data

The procedures for assessing language aptitude involved the administration of the Modern Language Aptitude Test. The long form of this test was used. The five parts and the traits measured by each part may be described as follows: (a) Number Learning, which purports to measure an aspect of memory and auditory alertness; (b) Phonetic Script, which was designed to measure sound-symbol association ability and memory for speech sounds; (c) Spelling Clues, which depends a great deal on the student's English vocabulary, but happens to measure sound-symbol association abilit also; (d) Words in Sentences, which purports to measure sensitivity to grammatical

structure; and (e) Paired Associates, which is believed to measure rote memory. Due to the fact that the Modern Language Aptitude Test has been used only at the ninth grade level or above, certain time adjustments were made giving as much time as needed for everyone to finish the work he wished to do. The exception to this was in Part III, Spelling Clues, where some extra time was given but it retained the aspect of a speed test rather than a power test, which all other parts are considered to be.

The procedures for assessing intelligence involved the administration of the Cooperative School and College Ability Tests. Form 5A of this test battery was used. Both a verbal and a quantitative measure of aptitude are available from this test.

The five Wallach and Kogan (19) creativity instruments, with two subscores for each, were administered to assess creativity. All of these instruments called upon the examinee to orally give verbal responses.

Analysis of Data

The reliability of the creativity measures and the four parts of the Modern Language Aptitude Test which are considered to be power tests were determined by using the Spearman-Brown split-half prophecy formula. The reliability coefficients reflected the experimental nature of the use of the tests.

As the Cooperative School and College Ability Tests is a standardized battery and widely used in intellective testing programs, considerable data are already available attesting to its high reliability.

Employing the point-biserial coefficient of correlation, it was determined that the middle-socioeconomic level performed at a significantly higher level than did those from the low-socioeconomic level on all measures. For the Modern Language Aptitude Test, the mean of those from the middle-socioeconomic level was 85.14; the standard deviation was 22.18. The mean for those from the low-socioeconomic level was 44.49; the standard deviation was 10.66. For the Cooperative

School and College Ability Tests, the mean of those from the middle-socioeconomic level was 75.80; the standard deviation was 14.24. The mean for those from the low-socioeconomic level was 50.56; the standard deviation was 16.11. For the creativity measures, the mean of those from the middle-socioeconomic level was 251.49 for the number score, 83.44 for the uniqueness score; the standard deviation was 162.09 for the number score, 96.85 for the uniqueness score. The mean for those from the low-socioeconomic level was 181.67 for the number score, 61.36 for the uniqueness score; the standard deviation was 66.51 for the number score, 36.12 for the uniqueness score.

The experimental design basic to the study was a factor analytic design. Each of the socioeconomic level groups was analyzed separately. The factor structures for each of these groups, the low-socioeconomic level group and the middle-socioeconomic level group, indicate that a difference in kind or quality of process underlying performance exists between the two groups. In addition, the factor structures for both socioeconomic level groups indicate that the attributes labeled language aptitude and intelligence have a great deal in common, but do not share this communality with the attributes labeled creativity. Tables 1 and 2 indicate the factor structures.

Table 1 - Middle-Socioeconomic Level

Variable:	Factor I	Factor II
1. Instances-number	.56	-.17
2. Alternate Uses-number	.86	-.04
3. Similarities-number	.84	.12
4. Pattern Meanings-number	.83	.14
5. Line Meanings-number	.91	.13
6. SCAT-Total	.02	.81
7. MLAT-Total	.03	.86

Table 2 - Low-Socioeconomic Level

Variable:	Factor I	Factor II	Factor III
1. Instances-number	.19	.81	-.12
2. Alternate Uses-number	.36	.60	-.43
3. Similarities-number	.81	.33	-.21
4. Pattern Meanings-number	.88	.16	.05
5. Line Meanings-number	.84	.12	.16
6. SCAT-Total	.21	.13	.51
7. MLAT-Total	-.12	.14	.74

The Modern Language Aptitude Test was also factor analyzed. In this analysis, the children from the middle-socioeconomic level tend to approach all language tasks involving the interrelations among meaning, sound, and symbols in much the same way, and in a way different from their approach to sentence structure. In contrast, the children from the low-socioeconomic level seem to have three separate approaches to language tasks: (a) one for structural relations, (b) one for sound-symbol meaning relations, and (c) one for recognition of symbols. Tables 3 and 4 indicate the factor structures.

Table 3 - Middle-Socioeconomic Level

Variable:	Factor I	Factor II
1. Number learning	.68	.16
2. Phonetic Script	.77	.01
3. Spelling Clues	.70	.09
4. Words in Sentences	.13	.97
5. Paired Associates	.59	.13

Table 4 - Low-Socioeconomic Level

Variable:	Factor I	Factor II	Factor III
1. Number Learning	.66	-.16	.20
2. Phonetic Script	-.04	.11	.68
3. Spelling Clues	.03	.89	.10
4. Words in Sentences	.69	.22	-.02
5. Paired Associates	.24	-.02	.41

Discussion

In examining the criteria used by Wallach and Kogan (19) in constructing the creativity instruments, it would appear that they are limiting their measurement of creative thought to what Guilford (8) would consider as ideational fluency, or divergently productive semantic thinking. However, more than one kind of divergently productive semantic thinking has been shown to exist (9); ideational fluency is but one of many components of creative intellectual behavior . . . but of particular importance to those who are interested in the language-thought processes.

Of major consideration here is the fact that the children from the two different socioeconomic levels appear to have different processes for creative thought. It appears that a change in the type of problem requiring divergently productive semantic thinking causes no change in the thought processes for the middle-socioeconomic level sixth-grade children but does cause a change in thinking processes for the low-socioeconomic level sixth-grade children. The factor structures show two factors in the creativity traits for the low socioeconomic group. One factor looks like Guilford and Hoepfner's (9) divergent production of semantic implications, being based upon the extrapolations and inferences the children make from lines, pictures, and names of objects. The other factor may be labeled divergent production of semantic units as it is based upon the production of many ideas involving the attributes of/or multiple ways in which one object may be used. A clearer

understanding of the causes underlying the differences between the two distinct socioeconomic groups with reference to divergently productive semantic thinking (or creative thought) may be indicated in future studies.

In considering the factor structures obtained from analyzing the Modern Language Aptitude Test, it was noted that here also different thought processes were apparent for the two distinct socioeconomic levels. As the differences were made clear in the analysis of the data, the underlying causes, substantiated by past research, may be discussed here.

To understand why the low-socioeconomic level children have more approaches to language than the middle-socioeconomic level group, the language of their "world" must be considered. Children from the low-socioeconomic level usually operate with two languages when they are of school age. One language, termed "public," is used in the home or neighborhood. The other, termed "formal," is used at school where it is usually learned. The latter is used much less than the former by these children but increases in use with age (2). It would appear that confusion between the two languages may develop or that, like bilinguals who have learned their second language in school, the low-socioeconomic level children may develop different sets of referential meanings for the language learned at school (7, 10). Also, a child, accustomed to the combinations of the sounds in his "public" language, might not be able to recognize the combinations of the sounds of "formal" language. As Pavenstedt (12) pointed out, children from low-class families form their words so poorly as to make it impossible to understand them at the age of three or four. In addition, Bloom, Davis, and Hess (3) indicated that the culturally deprived child has not had the same opportunity as other children in using language in the home; the language of the culturally deprived child is not as complex as that of other children either. Training, or lack of it, may be reflected in children's approaches to language learning.

It is also interesting to note that certain groups of adults (4) do not show

the same differentiation of abilities contributing to language aptitude as do sixth-grade children. Such a finding indicates the need for future research to involve individuals of all age levels.

Although some of the language-thought processes have been examined in this study, the small size of the sample of low-socioeconomic level sixth-grade children indicated the need for a replication study. Other studies might also involve further, more detailed comparisons of the language-thought processes in subjects of all ages, from various cultural backgrounds as well as from all socioeconomic levels the upper, middle, and lower levels. Such research may hopefully provide a guide to teaching through a better understanding of the individuals pertaining to the various groups (age, cultural, and socioeconomic level).

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